Bachelor's Thesis

Impact of national government ownership on ESG performance in the EU

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Abstract

Government ownership of publicly listed companies and its effects have been of great interest in the finance community for decades. This research will focus on European companies which have national government ownership and whether or not this has an impact on the ESG performance of these companies. The regression analysis indicates that government ownership has a negative impact on the ESG performance of companies. Furthermore, the analysis demonstrates that the negative impact of national government ownership on ESG performance is due to the large negative impact on corporate governance and social performance and does not stem from the environmental performance differences.

Contents

1 Introduction

Government involvement in companies has been studied from multiple points of view. The effects on profitability, leverage, labor intensity, corporate governance performance, and many other indicators have been researched. (e.g. Dewenter & Malatesta, 2001, Borisova, Brockman, Salas, & Zagorchev, 2012) In this paper, I focus on a novel aspect of the effects of government ownership, its impact on the ESG performance of companies. As mentioned, previous research has found that the effects of government ownership on corporate governance are negative. This effect is divided between the two existing legal systems that prevail in the EU. In civil law countries the government involvement has a negative effect and the opposite is found in common law countries where the effect is positive. (e.g. Borisova et al., 2012)

This knowledge from previous research provides a basis for the hypothesis of this study. As corporate governance is one of the three main pillars of ESG, the effects of government ownership on environmental and social performance will need to be significantly positive in order to make the total effect on ESG performance neutral or positive. However, national governments as owners would seem to in theory be more interested in the social and environmental consequences of the companies they own compared to other owners.

One of the world's largest and most respected investment authorities is the Government Pension Fund of Norway which is composed of a national and an international fund. The international fund has been active in ESG related issues. One example of this activity is the divestments in coal and tobacco companies in 2010 and 2014 respectively. The fund has an ethical board which, in co-operation with the data gathered on ESG issues by research provider RepRisk, the global ESG risk business intelligence provider, works to make sure that the fund's investments follow its ethical guidelines.

This paper begins by studying the effect of national government ownership on the ESG scores with a large sample of European companies. The findings of the initial analysis demonstrate that impact on the ESG score is negative and significant. As legal origin has been shown to affect the relation between government owners and companies, the difference between civil and common law countries is analyzed by adding an interaction variable.

(e.g. Porta, de Silanes, Shleifer, & Vishny, 1998, Porta, de Silanes, Shleifer, & Vishny, 1999) However, the introduction of this interaction variable does not give any statistically significant results for differences in ESG performance. As ESG is built upon three pillars, the impact of these three aspects are further analyzed with three separate regressions. The findings in this paper are partly in line with Borisova et al. (2012) as government ownership obtains a significant negative effect on corporate governance scores in the regression analysis. However, a statistically significant effect depending on the legal origin is not found for the interaction variable. The impact on social score are also both statistically significant and negative. However, environmental scores are not impacted significantly in our analysis.

The remainder of this paper will continue as follows. Related literature on ESG and government ownership will be summarized in Section 2. Section 3 will describe the data utilized in the conducted regression analysis and the results of this analysis are presented in Section 4. Finally, the conclusions and suggestions for further research are given in Section 5.

2 Related literature

2.1 ESG

Dahlsrud (2008) finds that although there does not seem to be one universal definition for CSR, the definitions used by different parties are consistent with each other. Furthermore, almost all of the definitions utilize at least three of the five dimensions related to CSR which are: (1) Environmental, (2) Social, (3) Economic, (4) Stakeholder and (5) Voluntariness. Marrewijk (2003) concludes that the CSR definitions need to be constructed by taking into account the different development, awareness and ambition levels of organizations. Moreover, ESG can be seen as a kind of sub-concept within CSR which is increasingly used by investors in order to evaluate how companies follow the principles of CSR.

ESG related questions have been on the rise from the beginning of the millennium and it seems like during the last couple of years the talk around them has only increased. As one example of this, in 2006 the United Nations in co-operation with institutional investors formed the Principles for Responsible Investment. The formation of this institution aims to

increase the number of long-term investors committed to utilizing the six main principles in their investment decisions. The initial signatories to these United Nations principles included around 100 investors. Since then, the number has increased to over 1700. Furthermore, the assets under management by signatory institutions have increased from under 6.5 trillion to just under 70 trillion USD.

There have been numerous studies carried out relating to the positive connection between company financial performance and CSR performance. Tsoutsoura (2004) conducted a study on US companies, and better CSR performance was shown to affect ROA in particular but also ROE and ROS. The tie between financial performance and ESG/CSR does however seem to work in both ways, making it difficult to say which affects which. (e.g. Ameer & Othman, 2012)

Given that implementing ESG practices have been shown to improve the financial performance of companies, it is only natural that the performance of portfolios considering ESG factors have also been found to be positive. Portfolios that hold stock with the highest social responsibility ratings and sell stock with the lowest rating have been found to provide significant abnormal returns when taking into account normal transaction costs. (e.g. Kempf & Osthoff, 2007). Previous research also indicates that companies performing better in CSR also have better financial performance e.g. profitability, growth and stock performance during a financial crisis. (e.g Lins, Servaes, & Tamayo, 2017)

Be it due to the possible improved financial performance of investments performing better in ESG issues or the will of investors to make a difference with their invested capital, investments in sustainable assets have been on the rise. The growth of sustainable investment assets from 2012 to 2016 was 72.2 percent, from 13.3 trillion to 22.9 trillion USD. Australia and New Zealand have had the fastest growth rates during the period. Moreover, sustainable investment assets have had a faster growth than traditional investment assets during the same period. (Global Sustainable Investment Alliance 2014, 2016) One might question if the observed growth is due to improved financial performance of investments performing better as a result of ESG, or because of the will of investors to make a difference with their invested capital?

2.2 Government ownership

Based on the report published by the European Commission, the financial performance of partly and fully state-owned companies in all analyzed industries is statistically and economically worse than that of privately owned companies. However, the performance differences were observed to decrease during the financial crisis. D'souza and Megginson (1999), in line with previous research (e.g. Boubakri & Cosset, 1998; Megginson, Nash, & Randenborgh, 1994), found in their research that the privatization of companies leads to a significant increase in financial performance, ranging from profitability to dividend payments.

The reasoning behind the perceived inefficiencies resulting from privatization of companies and the resulting increase in financial performance may be due to political aspirations and ties. Duchin and Sosyura (2012) find in their study that the political ties between corporations and the government influence the funding gathered from the Troubled Asset Relief Program. This finding implies that decisions made by the government are not only based on financial metrics. Bortolotti, Fotak, and Megginson (2015) discovered in their study that investments made by sovereign wealth funds have a negative effect on the operating performance of public companies in general and in particular when compared to investments made by private investors. Moreover, the size of this effect will differ depending on how politically connected and transparent the sovereign wealth fund is.

As discussed previously, the legal origins of the country play a role in how the government tends to act towards its holdings. Porta, Lopez-de-Silanes, and Shleifer (2002) identified the two different ways that governments influence companies. In the development view, governments are expected to aid companies when they are in need of additional resources, and by doing so they are acting based on the greater good of the country. On the contrary, in the political view governments become involved in companies due to their own political incentives, such as ensuring they get votes or even making decisions based on bribes. The division of these two views between common and civil law countries is that common law countries tend to act more like the development view indicates and civil law countries as the political view.

3 Data and methodology

3.1 Data

This paper uses Thomson Reuters ESG scores to measure ESG performance. The ESG score is based on ten factors measured by Thomson Reuters. For rating environmental performance: resource use, emissions and innovation. For rating social performance: workforce, human rights, community and product responsibility. And for rating corporate governance performance: management, shareholders and CSR strategy. ESG performance is rated from 0 to 100. The ESG scores were collected for all companies that were rated in the EU by Thomson Reuters during 2012-2016. The data was available for 808 companies. Furthermore, additional company specific data was also collected through Thomson Reuters Eikon and Datastream. Companies that were not found to have the necessary data available were removed from the analysis. This resulted in a sample of 767 companies. The financial data and ESG scores were collected on an annual bases.

To begin to identify the national government ownership in the companies, the Privatization Barometer was utilized which provides data of all companies privatized in the EU. Then the annual reports of the companies found in both the sample and the Barometer were reviewed for information about significant shareholdings in these companies. After this the sample was reduced to only those industries in which companies had national government ownership. The total sample at this point was 528 companies. Then all of the companies in the sample were inspected to find companies that had national government ownership but were not listed in the Privatization Barometer.

Based on the above process, the sample stood at 528 companies, of which 108 had had national government ownership during the sample period. The average national government ownership within the companies owned partly by national governments during the time period used in this study was 28.9 percent and within the total sample 5.9 percent. To depict the level of national government ownership in a company, a variable from zero to one was utilized.

As mentioned previously, company level variables were utilized as control variables that were gathered from Thomson Reuters and Datastream. Company size was taken into ac-

count based on the log of total assets in euros, and revenue growth was depicted by the change in revenue divided by the revenue in the previous year. Company profitability was determined on the return on assets. Leverage was depicted by the total debt divided by the company's total assets. Board gender diversity was measured using the percentage of total board members, and this measure has previously been shown to impact ESG/CSR performance positively. (e.g. Bear, Rahman, & Post, 2010) Whether or not the company pays out dividend was portrayed with a dividend dummy which takes the value of one if the company does pay out dividend and zero if it does not.

Multiple country level variables were also included in the regression analysis. Because the legal system of countries has been shown to affect the actions of the state as an owner as well as corporate governance actions, this variable was incorporated in the analysis as a dummy variable which took the value of one when the country in which the company is based in is a civil law country and the value of zero when it is determined to be a common law country. Country level economic performance measures were also incorporated. These included the log of GDP per capita in constant 2011 dollars with purchase price parity, and the annual percentage growth rate of GDP at market prices based on constant local currency. The GDP data was collected from the World Development Indicators (WDI) Database which is provided by the World Bank.

Table 1 depicts the correlation matrix for the independent variables. Table 2 presents the statistics for all of the variables used in the main regression analysis of this study. The national government ownership figures used in the regressions were lagged to minimize the likelihood of endogeneity. Futhermore, the unbounded variables (assets size, return on assets, leverage and revenue growth) were all winsorized at the 5th and 95th percentiles to remove possible outliers from the dataset.

3.2 Methodology

For testing the main hypothesis, that national government ownership has a significant relationship with ESG performance, the company ESG score was regressed on national government ownership, firm and country level explanatory variables, as well as year and industry level fixed effects. Country level fixed effects were not been implemented because a civil law

Table 1: Correlation coefficients

The below table presents the correlation coefficients of the independent variables.

	1	2	3	4	5	6	7	8	9	10
Log (assets)	1									
Legal origin	0.207	1								
ROA	-0.253	-0.1	1							
Board gender diversity	0.244	0.168	-0.006	1						
Log (GDP per capita)	-0.018	0.046	0.061	0.219	1					
GDP growth	-0.039	-0.315	0.062	0.057	0.277	1				
National government ownership	0.221	0.146	-0.083	0.027	-0.116	-0.03	1			
Leverage	0.448	0.101	-0.353	0.065	-0.093	-0.074	0.149	1		
Revenue growth	-0.059	-0.062	0.269	-0.074	-0.007	0.03	-0.051	-0.087	1	
Dividend dummy	0.145	0.012	0.354	0.092	0.044	-0.021	-0.046	-0.155	0.126	1

Table 2: Summary of data

The sample is made out of 528 companies of which 402 were totally privately owned and 108 have national government ownership during the time period from 2011 to 2015. Due to the national government ownership being lagged the other variables are from the time period 2012 to 2016.

Statistic	N	Mean	St. Dev.	Min	Max
ESG score	2,640	59.809	16.710	8.446	95.407
Log (assets)	2,640	9.974	0.817	8.154	11.617
Legal origin	2,640	0.714	0.452	0	1
ROA	2,640	3.608	4.720	−5.405	11.932
Board gender diversity	2,640	20.693	12.624	0.000	66.667
Log (GDP per capita)	2,640	4.597	0.099	4.352	4.987
GDP growth	2,640	1.385	2.418	−7.300	26.276
National government ownership	2,640	0.059	0.171	0.000	1.000
Leverage	2,640	40.981	24.821	−13.314	89.964
Revenue growth	2,640	0.016	0.107	−0.180	0.213
Dividend dummy	2,640	0.808	0.394	0	1

dummy variable was employed, which act as a linear function of country dummy variables.

The regression analysis does not take into account the possibility of reverse causality, i.e. the companies that national governments own might already be worse than others. For example, governments may end up as owners of poorly performing companies as a result of bailouts. To account for this, a univariate test for change in ESG score when national government ownership increases and decreases was conducted. The Student's one sample T-test was used for measuring if the median of the change was significantly different from zero. If the test suggested that ESG scores decrease (increase) significantly when national government ownership increases (decreases), the causality of the two could be analyzed.

$$ESG\ score_{it} = \alpha_0 + \beta_1 N_{it} + \beta_2 X_{it} + \gamma_k + \mu_j + \epsilon_{it} \tag{1}$$

The effect of national government ownership was estimated using the above regression model where ESG score is the dependent variable. The subscript i refers to the company and t to the year. N_{it} represents the vector of national government ownership and β_1 its coefficient. X_{it} represents the matrix of company and country-level variables and β_2 is a vector of their coefficients. γ_k represents the industry fixed effects, $k \in \{1, ..., 9\}$. μ_j represents the annual fixed effects and $j \in \{1, ..., 5\}$. ϵ_{it} is the error term.

Based on the premise of this study, the primary interest was in the statistical and economical significance of the β_1 coefficient and whether it was positive or negative. If the coefficient was found to be positive, this implied that national government ownership had a positive impact on the ESG performance of the company. Moreover, a negative coefficient had a negative impact on ESG performance.

4 Empirical results

4.1 National government ownership and ESG performance

Model 1 in Table 3 below presents the result of the primary regression where ESG score is the dependent variable and is regressed on the independent variables. Models 2, 3 and 4 have environmental, social and corporate governance scores as the dependent variables and regress these on the same independent variables as in Model 1. The national government

ownership coefficient is statistically significant at the 1% level and negative (-11.579) in Model 1. This finding suggests that national government ownership does in fact have a negative effect on the ESG performance of the company.

The negative effect of national government ownership on ESG performance can be explained at least partly by the negative correlation between national government ownership and corporate governance performance, which has been demonstrated in previous research. (e.g. Borisova et al., 2012) Due to those research observations, three separate regressions were implemented in which national government ownership and the other independent variables are regressed on environmental, social and corporate governance scores. This was done in order to determine if there are connections between the two other variables making up ESG performance and national government ownership. The scores for environmental, social and corporate governance performance were gathered from Datastream. This was due to Thomson Reuters Eikon not providing separate data for those. The performance of all three variables were rated from 0 to 100 based on the same methodology used in scoring ESG performance, 0 being the worst possible score and 100 being the best.

In Model 2, the impact of national government ownership on environmental score was not found to be statistically significant and was found to have a small negative coefficient. Thus, national government ownership cannot seem to be used to explain the environmental performance of the company in question. However, in Models 3 and 4 the coefficients of national government ownership are both negative and statistically significant at the 1% level. The coefficient in Model 3 for national government ownership on the social score is -6.481 and in Model 4 on the corporate governance score is -15.947. This result expresses that the impact of national government ownership on social performance is negative in addition to the negative impact to corporate governance, which is in line with the findings of previous research.

Table 3: Regression model

	Model 1	Model 2	Model 3	Model 4
National government ownership	−11.579***	−2.585	−6.481***	−15.947***
	(1.574)	(2.548)	(2.430)	(2.516)
Log (Assets)	13.440***	17.710***	15.068***	7.698***
	(0.414)	(0.670)	(0.639)	(0.661)
Civil law dummy	−5.335***	−4.385***	−3.176***	−31.699***
	(0.617)	(0.999)	(0.953)	(0.987)
ROA	0.075	−0.011	0.226**	−0.161
	(0.063)	(0.102)	(0.097)	(0.101)
Board gender diversity	0.274***	0.326***	0.282***	0.438***
	(0.022)	(0.035)	(0.033)	(0.035)
Leverage	0.004	0.047**	0.083***	0.091***
	(0.012)	(0.019)	(0.019)	(0.019)
Revenue growth	−4.071*	−13.906***	−8.289**	−0.627
	(2.423)	(3.922)	(3.740)	(3.873)
Dividend dummy	3.162***	6.428***	6.503***	2.716**
	(0.712)	(1.153)	(1.100)	(1.139)
Log (GDP per capita)	−3.750	−6.404	−2.058	16.432***
	(2.790)	(4.517)	(4.307)	(4.460)
GDP growth	−0.445***	−1.002***	−1.001***	−0.688***
	(0.122)	(0.197)	(0.188)	(0.195)
Constant	−60.907***	−100.206***	−84.824***	−76.972***
	(13.166)	(21.316)	(20.328)	(21.049)
Observations	2,640	2,640	2,640	2,640
R^2	0.436	0.443	0.382	0.372
Adjusted R^2	0.432	0.439	0.377	0.367
Residual Std. Error (df = 2617)	12.597	20.395	19.449	20.139
F Statistic (df = 22; 2617)	92.142***	94.790***	73.560***	70.424***

Note: *p<0.1; **p<0.05; ***p<0.01

4.2 Robustness checks

As mentioned previously, the legal origin of governments plays a significant role in how they act as owners. Therefore, it is of great interest to examine if there is a difference in the effect of national government ownership between civil and common law countries. To do this, an interaction variable is utilized between national government ownership and the civil law dummy. By implementing an interaction variable we will discover if there truly is a difference in the impacts in common and civil law countries.

In the case that both the interaction variable and the national government ownership variable are statistically significant, the difference can be calculated. The impact of the two different legal systems will be calculated as the sum of the national government ownership coefficient and national government ownership times the civil law dummy, where the civil law dummy will take the value of zero in the case of a common law country and one in the case of a civil law country.

Table 4 displays the regression results of the new regression where the interaction variable has been added in the second row of the independent variables. In model 1, the impact of national government ownership on ESG score is negative and statistically significant but the newly added interaction variable does not get a statistically significant result. Therefore, there is no statistical difference between common and civil law governments. The result of the previous regression analysis in Table 3 stands.

Models 2, 3 and 4 represent the results for environmental, social and corporate governance scores respectively. Both the national government ownership and interaction variable are significant in model 2. The result shows that the effect of national government ownership in common law countries has a positive and statistically significant coefficient (12.648) on the environmental score. However, in civil law countries the impact is negative $(12.648 - (18.297 * 1)) = -5,649$.

Although national government ownership had an impact on social score in Table 3 Model 3, when the interaction term is added the coefficients for both national government ownership and the interaction variable become non-significant. This implies that there is no difference between the effects of national government ownership based on the two legal

Table 4: Regression model

	Model 1	Model 2	Model 3	Model 4
National government ownership	−8.647**	12.648**	1.137	−15.095**
	(3.810)	(6.160)	(5.881)	(6.092)
National government ownership * Civil law dummy	−3.522	−18.297***	−9.151	−1.024
	(4.167)	(6.739)	(6.433)	(6.664)
Log (Assets)	13.433***	17.677***	15.052***	7.697***
	(0.414)	(0.669)	(0.639)	(0.662)
Civil law dummy	−5.242***	−3.904***	−2.936***	−31.672***
	(0.627)	(1.014)	(0.968)	(1.002)
ROA	0.074	−0.018	0.223**	−0.161
	(0.063)	(0.102)	(0.097)	(0.101)
Board gender diversity	0.273***	0.325***	0.282***	0.438***
	(0.022)	(0.035)	(0.033)	(0.035)
Leverage	0.003	0.045**	0.082***	0.091***
	(0.012)	(0.019)	(0.019)	(0.019)
Revenue growth	−3.998*	−13.528***	−8.099**	−0.606
	(2.424)	(3.920)	(3.742)	(3.876)
Dividend dummy	3.247***	6.873***	6.726***	2.741**
	(0.720)	(1.164)	(1.111)	(1.151)
Log (GDP per capita)	−3.937	−7.372	−2.542	16.378***
	(2.799)	(4.526)	(4.320)	(4.475)
GDP growth	−0.456***	−1.057***	−1.029***	−0.691***
	(0.122)	(0.198)	(0.189)	(0.196)
Constant	−60.064***	−95.827***	−82.634***	−76.727***
	(13.204)	(21.351)	(20.382)	(21.113)
Observations	2,640	2,640	2,640	2,640
R^2	0.437	0.445	0.383	0.372
Adjusted R^2	0.432	0.440	0.377	0.366
Residual Std. Error (df = 2616)	12.597	20.370	19.445	20.143
F Statistic (df = 23; 2616)	88.158***	91.210***	70.477***	67.338***

Note: *p<0.1; **p<0.05; ***p<0.01

origins. In Model 4, the added interaction term is not statistically significant, meaning that as in Model 1 the impact of national government ownership is not based on the legal origin of the country. The national government coefficient remains negative (-15.095) and significant.

As previously mentioned, our data and regression analysis does not consider the effect of reverse causality. The firms governments own may be already performing worse than their counterparts. Therefore, the result based on the regression analysis conducted suggests that national government ownership has a negative impact on ESG, social and corporate governance performance may not be robust. The univariate one sample Student's t-test was implemented to measure the change in performance at different national government ownership levels.

The results of the Student's t-tests conducted can be found in Table 5. For the change in ESG score when national government increases (decreases) is not statistically significant in either case. This suggests that the change in ESG score is not related to the change in national government ownership. The test is significant in both cases for environmental score but the mean is positive when national government ownership increases and decreases. Thus, the change in national government ownership cannot be strictly associated with change in environmental performance.

Based on the analysis, social and corporate governance score change is in relation with the change in national government ownership. Social score increases when national government ownership decreases and corporate governance score decreases when ownership increases. However, the results were only significant for one side of the change for these two scores. The t-tests carried out do not give an unambiguous explanation to the question of reverse causality due to the nature of the test and the results obtained.

5 Conclusion

The purpose of this study was to investigate the effect of national government ownership on the environmental, social and corporate governance performance (ESG) in companies in the EU. ESG data for both government and non-government owned companies was gathered

Table 5: Student's t-test results

The table represents the results of the Student's t-test conducted on the changes in the four different performance scores when national government ownership increases and decreases. The sample size for the positive changes in national government ownership is 95 and 129 for the negative changes. The number represented illustrates the mean of the change in the variable in question.

	Change	
National government ownership	Positive	Negative
ESG score	0.824	0.541
Environmental score	1.604**	1.001**
Social score	0.705	1.560***
Corporate Governance score	-2.663**	-0.003

*p<0.1; **p<0.05; ***p<0.01

and the regression analysis was conducted with a sample of 528 companies of which 108 had national government ownership during the time period 2011-2015. Also, the difference between national government ownership in civil and common law countries was analyzed.

The primary regression model used finds that there is a statistically and economically significant negative relation between national government ownership and ESG score. Further analysis of the three categories separately indicates that the negative impact is due to the performance in the social and corporate governance measures. The environmental performance score is not significantly impacted. However, after an interaction variable between national government ownership is added, the regression results suggest that in common law countries national government ownership has a positive effect on environmental score and in civil law countries the effect is negative. The interaction variable does not have a statistically significant effect in the other regressions.

The findings are in line with previous research as a significant negative impact on corporate governance was found due to national government ownership. However, the addition of the interaction term did not indicate a difference between civil and common law countries in this regression as it did in previous research.

The shortcoming of the regression analysis conducted in this paper has to do with the possibility of reverse causality as mentioned before, even though there was an attempted to limit this by utilizing the univariate robustness check for change in dependent variable when national government ownership changes. Therefore, the paper cannot precisely conclude if the national government ownership is the actual causation of the negative impact.

Possible future research could focus more on the issue of reverse causality. The issue could be tackled by gathering the national government ownership only from privatized companies, as they have been previously completely owned by the government. A regression analysis on the change of ESG score on the change of national government ownership and control variables could also be conducted for a more robust estimate of the causality. Future research on the subject could also implement a matching of privately and partly publicly owned firms for the regression analysis as Borisova et al. (2012) do in their paper.

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